

ExpressCard with On-Card Flash Memory with Shared Flash-Control Bus but Separate Ready Lines

Abstract

An ExpressCard contains flash memory. The ExpressCard has an ExpressCard connector that plugs into a host, such as a personal computer, digital camera, or personal digital assistant (PDA). A controller chip on the ExpressCard uses a pair of differential Universal-Serial-Bus (USB) data lines in the connector to communicate with the USB host, or can use PCI Express, Firewire, or other protocols. One or more flash-memory chips on the ExpressCard are controlled by a flash-memory controller in the controller chip. Two or more channels of a flash bus have a shared control bus but separate ready lines. The separate ready lines allow flash-memory chips in the two channels to finish operations at different times.